

CLAIMS

1. A DNA comprising a structure in which any one of the following DNA (a) to (c) is placed under the control of a storage protein promoter,

5 (a) a DNA in which a DNA encoding a storage protein signal sequence is added to the 5'-end of a DNA encoding an allergen-specific T-cell epitope peptide and/or a DNA encoding an ER-retention signal sequence is added to the 3'-end thereof;

(b) a DNA encoding a polypeptide in which a storage protein signal sequence is added to the N-terminal of an allergen-specific T-cell epitope peptide and/or an ER-retention signal
10 sequence is added to the C-terminal thereof; and

(c) a DNA encoding a polypeptide having a structure in which an allergen-specific T-cell epitope peptide is inserted into a variable region of a storage protein.

2. A vector for preparing a plant accumulating a T-cell epitope, wherein said vector comprises
15 the DNA according to claim 1.

3. A host cell harboring the DNA according to claim 1 or the vector according to claim 2.

4. A method for accumulating an allergen-specific T-cell epitope in a plant, wherein said method
20 comprises the step of introducing the DNA according to claim 1 or the vector according to claim 2 into a plant.

5. A method for accumulating a T-cell epitope in a plant, wherein said method comprises the steps of:

25 (a) obtaining a DNA encoding an allergen-specific T-cell epitope peptide;

(b) adding a DNA encoding a storage protein signal sequence to the 5'-end of the DNA obtained in (a), and/or a DNA encoding an ER-retention signal sequence to the 3'-end thereof; and

(c) expressing the DNA of (b) under the control of a storage protein promoter in a plant.
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6. A method for accumulating a T-cell epitope in a plant, wherein said method comprises the steps of:

(a) obtaining a DNA encoding an allergen-specific T-cell epitope peptide; and

(b) inserting the DNA of (a) into a DNA region encoding a variable region of a plant storage
35 protein to express the DNA.

7. The method according to any one of claims 4 to 6, wherein said allergen is a Japanese cedar pollen allergen.

8. The method according to claim 7, wherein said Japanese cedar pollen allergen is Cry j1 and Cry j2.

9. The method according to any one of claims 4 to 8, wherein said T-cell epitope is accumulated in an edible part of a plant.

10. The method according to claim 9, wherein said edible part is a seed.

11. A transgenic plant produced by the method according to any one of claims 4 to 10, wherein said plant comprises a T-cell epitope accumulated therein.

12. A transgenic plant which is a progeny or a clone of the plant according to claim 11.

13. A cell derived from the plant according to claim 11 or 12.

14. A breeding material of the plant according to claim 11 or 12.

15. A seed of the plant according to claim 11 or 12.

16. The seed according to claim 15, wherein said seed is thermostable.

17. A rice produced by the method according to claim 10, wherein said rice comprises a T-cell epitope accumulated therein.

18. A food composition for treating or preventing an allergic disease, wherein said food composition comprises the seed according to claim 15 or 16 or the rice according to claim 17 as an effective ingredient.

19. The food composition according to claim 18, wherein said allergic disease is a type I allergy.

20. A method for producing a transgenic plant comprising a T-cell epitope accumulated therein using the method according to any one of claims 4 to 10.

21. A method of producing a rice comprising a T-cell epitope accumulated therein using the method according to claim 10.

22. A rice comprising an allergen-specific T-cell epitope accumulated in albumen.

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23. A food/drink product comprising the rice according to claim 22, wherein said product has an activity associated with the prevention, treatment, or alleviation of an allergic disease.

24. The rice according to claim 22, wherein said allergen is a pollen allergen.

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25. A food/drink product comprising the rice according to claim 24, wherein said product has an activity associated with the prevention, treatment, or alleviation of pollinosis.